

Northwest Atlantic Fisheries Organization



**Report of the NAFO Joint Commission-Scientific Council Working Group on the
Ecosystem Approach Framework to Fisheries Management (WG-EAFFM) Meeting**

17-19 August 2020
Via WebEx

NAFO
Halifax, Nova Scotia, Canada
2020

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1. Opening by the co-Chairs, Carmen Fernández (European Union) and Elizabethann Mencher (USA)

The meeting was opened by the chairs Carmen Fernández (European Union) and Elizabethann Mencher (USA), at 08:30 hours Halifax time (12:30 UTC/GMT) on Monday, 17 August 2020.

The co-Chairs welcomed the scientists and fisheries managers from Canada, European Union, Iceland, Japan, Norway, Russian Federation, Ukraine and the United States of America. Invited Expert (Andrew Kenny) and observers from ABNJ Deep Seas Project, Dalhousie University, Ecology Action Centre and Oceans North Canada were also welcomed (Annex 1).

2. Appointment of Rapporteur

The Senior Fisheries Management Coordinator and Scientific Council Coordinator (NAFO Secretariat) were appointed co-Rapporteurs of this meeting.

3. Adoption of Agenda

The previously circulated provisional agenda was adopted (Annex 2).

The co-Chairs noted that, due to the format of the meeting, it was unlikely that there would be time to address all agenda items. Following suggested prioritization of work items for the Commission and further discussion between the co-Chairs, three areas were proposed as priority: the re-evaluation of the VME closure areas, continuing progress on the EAF roadmap (including planning for the postponed NAFO WG-EAFFM Workshop of fisheries managers and scientists to draft ecosystem objectives) and the preparation for a review of NAFO CEM Chapter II.

4. Review of the July 2019 Recommendations (COM-SC Doc. 19-03), including requests to the SC from 2019 Annual Meeting (COM Doc. 19-29)

WG-EAFFM noted that, due to time constraints in the June SC meeting (held by correspondence instead of the usual in-person format), it was not possible for SC to address all of the requests for advice from the Commission. In particular, SC did not address Commission requests 16, 18 and 3 and there was, therefore, no discussion under items 6e, 6f and 6g during the present meeting.

Also, WG-EAFFM noted that most of the nine recommendations from COM-SC Doc. 19-03 involve processes and that, subject to the prioritization of the agenda items (see above), they would be covered at this meeting, as reflected in the current agenda.

With regards to the recommendation from COM-SC Doc. 19-03 on the definition of fishing times for bottom contact gear, an updated recommendation to this effect was formulated by the WG this year to ensure consistency within the NAFO Conservation and Enforcement Measures (NAFO CEM) (see agenda item 10 recommendation 4).

5. Implementation of the 2018 Performance Review Panel Recommendations relevant to this working group (COM Doc. 19-32)

The WG-EAFFM recalled the 2018 NAFO Performance Recommendations and noted that three (3) recommendations identified this WG as the lead NAFO Body for implementation (NAFO/COM Doc. 19-32):

- PR Recommendation 1, pertaining to Ecosystem Approach Framework Roadmap;
- PR Recommendation 14, pertaining to fishing surveys on Vulnerable Marine Ecosystems (VMEs) within closed areas;
- PR Recommendation 15, pertaining to FAO 3-alpha codes for VME indicator species;

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The WG-EAFFM is in agreement that its actions in performing its work are in alignment with the *Action Plan for the Implementation of the Recommendations from the 2018 Report of the NAFO Performance Review Panel* (NAFO COM Doc. 19-32), as reflected in the agenda and recommendations of this and the previous meetings.

The WG-EAFFM have also taken note of the additional recommendation contained in NAFO COM Doc. 19-32 pertaining to non-fishing activities and their impact on the stocks, fisheries and biodiversity in the NAFO Regulatory Area.

The WG-EAFFM committed to continue its work in accordance with the PR recommendations and the Action Plan.

6. Presentation and discussion of SC responses to COM requests for advice in 2019 (COM Doc. 19-29)

a. Request 7 – Re-assessment of VME closures by 2020, including Area #14

Andrew Kenny (co-Chair of WG-ESA and former co-Chair of WG-EAFFM, and invited expert at this meeting), presented on behalf of SC the response provided by SC in June 2020 based on work undertaken by WG-ESA in 2019 (COM-SC EAFFM-WP 20-07).

Overall, SC did not recommend the removal or reduction of any of the currently closed areas. The SC assessed the level of protection of some VME types as poor (black coral and sea pen) or inadequate (erect bryozoans, sea squirt and small gorgonian) and management action is recommended as essential for these VME types.

Given the challenging circumstances of the WG-EAFFM meeting, as well as the Annual Meeting, some CPs suggested rolling over the currently closed VME areas for one year.

SC members at the WG-EAFFM meeting explained that, according to their understanding, the SC response suggested that the current areas should not be removed or reduced, as well as a need to consider refining and/or expanding some of the closure boundaries. Due to constraints caused by Covid-19 pandemic, it has not been possible to fully consider these recommendations, including the inter-sessional work required to come up with possible management options, and the WG agreed that it would not be feasible to do this work during the current meeting. WG-EAFFM therefore supports maintaining the current situation regarding closures until the end of 2021, thereby providing additional time to formulate the required potential management options (see agenda item 10 recommendation 1).

WG-EAFFM considered the SC recommendation to include Black Coral in the NAFO CEM VME indicator species list. It was not formerly included in the NAFO list of VME indicator species due to lack of evidence showing that it forms aggregations in the NRA, which would constitute a VME. The increased amount of data available for the present analysis indicates that it does indeed form aggregations in the NRA. Consequently, and in accordance with the SC advice, WG-EAFFM recommends to include Black Corals in the NAFO CEM list of VME indicator species (see agenda item 10 recommendation 2).

b. Request 6 – Assessment of NAFO bottom fisheries for 2021

Andrew Kenny presented on behalf of SC the SC response to this request (COM-SC EAFFM-WP 20-06).

WG-EAFFM noted and thanked the SC for their considerable work for the 2020 VME review and the 2021 re-assessment. WG-EAFFM discussed the likely possibility that WG-ESA will have to meet virtually this year due to Covid-19 travel constraints, and that, as a result, the SAI assessment may be delayed. WG-EAFFM therefore noted that there is a significant risk that SC may not be able to provide a full response regarding the re-assessment of NAFO bottom fisheries in its June 2021 report.

Some CPs expressed concern about the current approach to SAI analysis, particularly with regard to the application of expert judgment in weighting the individual assessment metrics against the six FAO criteria. SC participants expressed the view that developing and applying this weighted approach would likely require further face-to-face meetings and, potentially, a workshop to resolve. WG-EAFFM advised that the SAI analysis should proceed even if it is not possible to weight the individual assessment metrics against the six FAO criteria for the 2021 assessment, which would be consistent with the approach adopted for the last assessment (in 2016).

Pierre Pepin (co-Chair of WG-ESA) indicated that the Significant Adverse Impact (SAI) assessment, due to be available next year, would help in delimiting the closures with minimal disturbance to the fishing industry. SAI will be in the agenda of the WG-ESA at its next meeting (in late 2020).

WG-EAFFM discussed about the process to develop management responses based on SC's advice arising from the SAI assessments. SC members noted they have previously avoided making specific recommendations on the exact nature of management actions required (which may not necessarily be more extensive area closures, as other alternatives might potentially be entertained), as this is considered to be the purview of the Commission. However, fishery managers in WG-EAFFM noted that additional guidance from scientists would be useful to effectively initiate discussions at the 2021 WG-EAFFM meeting. Consequently, in relation to the 2021 re-assessment of bottom fishing as well as the continued discussion on the VME fishery closures, WG-EAFFM recommended that the SC be requested to provide input and analysis of potential management options, with the goal of supporting meaningful and effective discussions between scientists and managers at the 2021 WG-EAFFM meeting (see agenda item 10 recommendation 3).

WG-EAFFM takes note of SC's intent, as part of the next cycle of VME and bottom fishery assessments scheduled to begin after 2021, to conduct a review of the precise spatial scope to be considered for the assessment of VME extent and the adequacy of fisheries closures for VMEs present in the tail of the Grand Bank, 3L and 3M and the assessment of bottom fisheries. This review will have no impact on the 2021 assessment process.

c. Request 5 – SC report on its work on Ecosystem Approach

Pierre Pepin (co-Chair of WG-ESA) presented on behalf of SC the response to this Commission request (COM-SC EAFFM-WP 20-05). The presentation centered on the Ecosystem Production Potential (EPP) and its use for fisheries advice.

WG-EAFFM stressed the importance of the SC's work on the Roadmap, and the WG's strong support to continue its development. SC presented three recommendations in relation to the Roadmap. WG-EAFFM was generally supportive of all of them, but some CPs expressed the need for additional time to fully consider them. WG-EAFFM noted that the first recommendation, which relates to SC alerting the Commission when certain catch thresholds are exceeded, was operational in nature and, as an interim management measure, could be implemented already in the short term. The other two recommendations require considerable additional work and could, therefore, only result in management actions in the longer term. WG-EAFFM will consider each of the recommendations again at its 2021 annual meeting.

Some CPs further expressed the need for the NAFO EAFM Roadmap workshop, which was slated for Summer 2020 but was postponed due to Covid-19 concerns, to further consider these recommendations (see agenda item 8).

Two recommendations were drafted pertaining to how ecosystem advice could inform management decisions and implementation of the EAFM Roadmap (see agenda item 10 recommendations 5 and 6).

d. Request 12 – Ecosystem Summary Sheet for Divisions 3LNO

Pierre Pepin (co-Chair of WG-ESA) presented on behalf of SC the response to this Commission request (COM-SC EAFFM-WP 20-08). The presentation centered on the Ecosystem Summary Sheet (ESS) for Divisions 3LNO. The ESS provides a synoptic perspective on the state of NAFO ecosystems and their management regimes, and will be presented to the Commission at the 2020 Annual Meeting, in accordance with a WG-EAFFM recommendations from 2019.

From the summary and recommendations emanating from the ESS work, two issues garnered further discussions.

One is the consideration of reduction of piscivore catch levels, particularly redfish, Greenland halibut, and Atlantic cod. One Contracting Party indicated that measures concerning reduction of catch requires further reflection and consultations.

The other is the recommendation that the NAFO Secretariat request information from Canada and ICCAT for stocks in or migrating through the 3LNO Ecosystem Production Unit, which WG-EAFFM endorsed. Canada noted the significant amount of data to be requested of Canada, and indicated that the request has potential policy and legislative implications, which may impact what information it is able to provide.

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Substantial discussion took place around the consideration of non-fishery activities in the development of the ESS, and WG-EAFFM urged CPs to provide resources and information to improve analysis on the “*other human activities*” indicators. One CP in particular stressed the relevance of having the ESS to reflect the extent of the presence of other human activities in the ecosystem. The ESSs are intended to provide a synoptic perspective on the state of NAFO ecosystems and their management regime. As such, a comprehensive description of all the activities impacting the ecosystem is key to support the ESS in achieving its goal as a tool for strategic assessment, advice, and planning.

WG-EAFFM also noted the importance of CPs to proactively provide relevant research that inform SC’s work and of the provision of external experts from other international organizations such as FAO and ICES. A recommendation to this effect was drafted (see agenda item 10 recommendation 7).

e. Request 16 – Impacts of potential activities other than fishing

This agenda item was deferred, since no response from SC was available.

f. Request 18 – Sea turtles, sea birds, and marine mammals in the NAFO Regulatory Area

This agenda item was deferred, since no response from SC was available.

g. Request 3 – Impacts of removal of survey sets from VME closed areas on stock assessment metrics.

This agenda item was deferred, since no response from SC was available.

7. Discussion on process for review of Chapter II of the NAFO Conservation and Enforcement Measures “Protection of Vulnerable Marine Ecosystems (VMEs) in the Regulatory Area from Bottom Fishing Activities”, as required by Chapter II, Article 24.

According to Article 24 of the NAFO CEM, the provisions of Chapter II shall be reviewed by the Commission no later than 2020.

The WG noted that such a review could not be conducted at this meeting because it requires input from STACTIC and SC. WG-EAFFM considers that STACTIC should review the implementation of Chapter 2 and SC should review the effectiveness of the measures from the scientific perspective. A recommendation to this effect was drafted. The process is anticipated to have a 2-year timeline to 2022 (see agenda item 10 recommendation 8).

8. Discussion on next steps, including pertaining to the postponed NAFO WG-EAFFM Workshop of fisheries managers and scientists to draft ecosystem objectives, originally scheduled in August 2020

Due to the Covid-19 pandemic, the planned workshop, which was scheduled to take place over 2 days in Brussels in August 2020 (immediately before the WG-EAFFM and WG-RBMS meetings), had to be postponed. It was recalled that the Terms of Reference for this workshop were already adopted in 2019 (NAFO COM-SC Doc. 19-10).

It was agreed that the planning of this workshop shall continue, with an initial tentative schedule similar to what was originally planned, but with one year delay, i.e. the workshop could occur on the week prior to the back-to-back meetings of WG-EAFFM and the WG-RBMS in Summer 2021. However, upon discussion, WG-EAFFM considered that this may not be an optimal timing, because attention at that time may instead be focused on matters related to VME closures and assessment of bottom fisheries, compromising the success chances of the EAFM workshop. The EU, which was hosting the workshop in 2020, offered to host it whenever it takes place.

The meeting was also reminded of the earlier request to CPs for expert nominations (communication NAFO-20/121, April 2020), to which only two CPs have responded so far. CPs were encouraged to respond to this communication, providing their proposals to the Secretariat as soon as possible. It is expected that about 5 or 6 presentations could be usefully given on the first workshop day (one of those presentations would be from NAFO) and that it may be possible for NAFO to find money to cover the expenses of the 5 or so corresponding invited external experts (provided STACFAD agrees a budget for this in September; the NAFO Secretariat agreed to follow up on this). Another aspect raised in discussion was whether workshop participation should be open to other international organizations, such as ICES and FAO (possibly as observers), and other RFMOs.

It was agreed that a small sub-group of members from WG-EAFFM would be convened to develop the details of the workshop, including adding some detail on the structure of the event as well as dealing with the questions just noted. WG-EAFFM members interested to participate in the sub-group's work were requested to indicate this by e-mail to the WG-EAFFM co-chairs by early September.

9. Other Matters

a. Update on the possible renewal of the FAO Deep Sea Project

Tony Thompson (FAO) provided an update of the *ABNJ Deep Seas Project*. Dr. Thompson reported on the accomplishments of the first Project and the renewal of this Project (now renamed the Deep Sea Fisheries Project), which is in the final stages of development (COM-SC EAFFM-WP 20-02). A novel aspect in the new project is the consideration of cross-sector integration, including threats to Deep Sea Fisheries from other sectors and frameworks to manage such threats.

The Executive Secretary informed the WG that NAFO had been a collaborating partner on the previous Project, with 'in-kind' contributions from NAFO scientists, managers and Secretariat members in sharing expertise in the field of fisheries science and fisheries management with the FAO, other deep-sea RFMO's and other organizations involved with oceans.

The renewed Project is anticipated to commence in 2022 and NAFO is being requested to continue being a collaborating partner. As with the previous Project, NAFO's continuing work on VMEs and the development of an ecosystem approach framework to fisheries management could constitute much of NAFO's 'in-kind' contribution, although the details still need to be worked out. As with NAFO's participation in the previous Project, NAFO's participation in the renewed Project would have to be approved by the Commission.

b. State-of-play of the BBNJ negotiations

The Executive Secretary informed on the progress of the Biological Diversity Beyond Areas of National Jurisdiction (BBNJ) process in which he has been participating in the negotiations as an observer (COM-SC EAFFM-WP 20-03). Due to the COVID-19 pandemic, the fourth (and last) round of negotiations, scheduled for March 2020, has been postponed indefinitely. He identified that the main issues of these negotiations of particular interest for this WG and NAFO are area-based management tools, environmental impact assessments and governance structure of any international legally binding instrument (ILBI) and how it will interact with NAFO.

c. Proposed Memorandum of Understanding (MOU) between Secretariats of NAFO and the Sargasso Sea Commission

The Executive Secretary reported that the NAFO Secretariat has been approached by the Secretariat of the Sargasso Sea Commission (SSSC) about the possibility of signing a Memorandum of Understanding (MOU) between the two Secretariats. A draft text of the MOU was presented (EAFFM WG 20-04) and the WG was requested for advice in the improvement of the draft text. The Executive Secretary noted that the focus of the MOU was on marine scientific research and the collection of data, which would be of particular relevance for the SC.

The WG-EAFFM noted the presentation. Due to the limited time available it could not make any explicit action in terms of a recommendation. Instead, the WG encouraged the Secretariat to continue the exploratory talks with the SSSC in refining the draft MOU.

10. Recommendations

The WG-EAFFM recommends that:

1. In relation to the re-assessment of VME closures, and acknowledging the Scientific Council advice regarding the status of VMEs, that all closures listed in Chapter 2, Article 17, "Area Restrictions for Bottom Fishing Activities" are rolled over for one year. Consequently,
 - a. Article 17.1 of the NAFO CEM should read: Until 31 December 2020 2021, no vessel shall engage in bottom fishing activities in any of the areas illustrated in Figure 3 and defined by connecting the following coordinates specified in Table 5 in numerical order and back to coordinate 1.

- b. Article 17.2 of the NAFO CEM should read: Until 31 December ~~2020~~ 2021, no vessel shall engage in bottom fishing activities in the area of Division 3O illustrated in Figure 4 and defined by connecting the coordinates specified in Table 6 in numerical order and back to coordinate 1.
 - c. Article 17.3 of the NAFO CEM should read: Until 31 December ~~2020~~ 2021, no vessel shall engage in bottom fishing activities in the areas 1-13 illustrated in Figure 5 and defined by connecting the coordinates specified in Table 7 in numerical order and back to coordinate 1.
2. That Black Coral taxa (Antipatharia) are added to the VME indicator species list. Consequently, Annex IE, part VI of the NAFO CEM “List of VME Indicator Species” should be appropriately amended (see Annex 3).
 3. In relation to the 2021 re-assessment of bottom fishing as well as the discussion on the VME fishery closures, that Commission requests Scientific Council provide input and analysis of potential management options, with the goal of supporting meaningful and effective discussions between scientists and managers at the 2021 WG-EAFFM meeting.
 4. The Commission, through STACTIC, insert a footnote in Annex II.N Fishing Logbook Information by Haul of the NAFO CEM, to clarify and match the definition of Start and End time of fishing in Annex II.M (see Annex 4).
 5. In relation to the Scientific Council’s first recommendation with respect to COM request #5 and recognizing the limited nature of the 2020 virtual working group meeting, the Commission, through the WG-EAFFM, continue to consider this recommendations in 2021, and develop options of how ecosystem advice could inform management decisions, an issue which is directly linked to the results of the foreseen EAFM roadmap workshop.
 6. Additionally, that the Commission request the Scientific Council to continue its work to develop models that support implementation of Tier 2 of the EAFM Roadmap.
 7. In relation to the development of the ecosystem summary sheets, in particular consideration of non-fishery related activities, that the Commission requests Contracting Parties to proactively provide any relevant research to inform the Scientific Council’s work, as well as identify scientific and management experts in non-fisheries related sectors to participate in Scientific Council and WG-EAFFM discussions. Further, that the Secretariat and the Scientific Council work with other international organizations, such as the FAO and ICES, to bring in additional expertise to inform the Scientific Council’s work.
 8. In relation to Chapter 2, Article 24 of the NAFO CEM, that STACTIC review the implementation of chapter 2, and suggest, as necessary, any revisions to WG-EAFFM with a view to improve the effectiveness of management measures. And that the Commission request the Scientific Council to also review the effectiveness of Chapter 2 from a scientific perspective and to report back at 2022 WG-EAFFM meeting. Consequently, Article 24 of the NAFO CEM should read: The provisions of this Chapter shall be reviewed by the Commission at its Annual Meeting no later than ~~2020~~ 2022.

11. Adoption of the report

The report was adopted via correspondence.

12. Adjournment

The meeting was adjourned at 13:00 on 19 August 2020.

Annex 1. List of Participants

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Report of the WG-EAFFM,
17-19 August 2020

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Annex 2. Agenda

1. Opening by the co-Chairs, Carmen Fernández (European Union) and Elizabethann Mencher (USA)
2. Appointment of Rapporteur
3. Adoption of the Agenda
4. Review of the July 2019 Recommendations (COM-SC Doc. 19-03), including requests to the SC from 2019 Annual Meeting (COM Doc. 19-29)
5. Implementation of the 2018 Performance Review Recommendations relevant to this Working Group (COM Doc. 19-32)
6. Presentation and discussion of SC responses to COM requests for advice in 2019 (COM Doc. 19-29)
 - a. Request 7 – Re-assessment of VME closures by 2020, including Area #14
 - b. Request 6 – Assessment of NAFO bottom fisheries for 2021
 - c. Request 5 – SC report on its work on Ecosystem Approach
 - d. Request 12 – Ecosystem Summary Sheet for 3LNO
 - e. Request 16 – Impacts of potential activities other than fishing
 - f. Request 18 – Sea turtles, sea birds, and marine mammals in the NAFO Regulatory Area
 - g. Request 3 – Impacts of removal of survey sets from VME closed areas on stock assessment metrics
7. Discussion on process for review of Chapter II of the NAFO CEM “*Protection of Vulnerable Marine Ecosystems (VMEs) In the Regulatory Area from Bottom Fishing Activities*”, as required by Chapter II, Article 24
8. Discussion on next steps, including pertaining to the postponed WG-EAFFM Workshop of Fishery Managers and Scientists to draft Ecosystem Objectives originally scheduled in August 2020
9. Other Matters
 - a. Update on the possible renewal of the FAO Deep Sea Project
 - b. State-of-play of the BBNJ negotiations
 - c. Proposed MOU between Secretariats of NAFO and the Sargasso Sea Commission
10. Recommendations
11. Adoption of the report
12. Adjournment

Annex 3. Proposed Revision to NAFO CEM Annex 1E, Table VI: List of VME Indicator Species

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3- ALPHA CODE
Large-Sized Sponges (PFR - Porifera)	<i>Asconema foliatum</i>	Rossellidae	ZBA
	<i>Aphrocallistes beatrice</i>	Aphrocallistidae	
	<i>Asbestopluma (Asbestopluma) ruetzleri</i>	Cladorhizidae	ZAB (Asbestopluma)
	<i>Axinella</i> sp.	Axinellidae	
	<i>Chondrocladia grandis</i>	Cladorhizidae	ZHD (Chondrocladia)
	<i>Cladorhiza abyssicola</i>	Cladorhizidae	ZCH (Cladorhiza)
	<i>Cladorhiza kenchingtonae</i>	Cladorhizidae	ZCH (Cladorhiza)
	<i>Craniella</i> spp.	Tetillidae	ZCS (Craniella spp.)
	<i>Dictyaulus romani</i>	Euplectellidae	ZDY (Dictyaulus)
	<i>Esperiopsis villosa</i>	Esperiopsidae	ZEW
	<i>Forcepia</i> spp.	Coelosphaeridae	ZFR
	<i>Geodia barrette</i>	Geodiidae	
	<i>Geodia macandrewii</i>	Geodiidae	
	<i>Geodia parva</i>	Geodiidae	
	<i>Geodia phlegraei</i>	Geodiidae	
	<i>Haliclona</i> sp.	Chalinidae	ZHL
	<i>Iophon piceum</i>	Acarnidae	WJP
	<i>Isodictya palmata</i>	Isodictyidae	
	<i>Lissodendoryx (Lissodendoryx) complicata</i>	Coelosphaeridae	ZDD
	<i>Mycale (Mycale) lingua</i>	Mycalidae	
	<i>Mycale (Mycale) loveni</i>	Mycalidae	
	<i>Phakellia</i> sp.	Axinellidae	
	<i>Polymastia</i> spp.	Polymastiidae	ZPY
	<i>Stelletta normani</i>	Ancorinidae	WSX (Stelletta)
	<i>Stelletta tuberosa</i>	Ancorinidae	WSX (Stelletta)
	<i>Stryphnus fortis</i>	Ancorinidae	WPH
	<i>Thenea muricata</i>	Pachastrellidae	ZTH (Thenea)
	<i>Thenea valdiviae</i>	Pachastrellidae	ZTH (Thenea)
	<i>Weberella bursa</i>	Polymastiidae	

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3- ALPHA CODE
Stony Corals (CSS - Scleractinia)	<i>Enallopsammia rostrata*</i>	Dendrophylliidae	FEY
	<i>Lophelia pertusa*</i>	Caryophylliidae	LWS
	<i>Madrepora oculata*</i>	Oculinidae	MVI
	<i>Solenosmilia variabilis*</i>	Caryophylliidae	RZT
<u>Black corals</u> <u>(AOZ- Antipatharia)</u>	<u><i>Stichopathes</i> sp.</u>	<u>Antipathidae</u>	<u>QYX</u>
	<u><i>Leiopathes</i> cf. <i>expansa</i></u>	<u>Leiopathidae</u>	
	<u><i>Leiopathes</i> sp.</u>	<u>Leiopathidae</u>	
	<u><i>Plumapathes</i> sp.</u>	<u>Myriopathidae</u>	
	<u><i>Bathypathes</i> cf. <i>patula</i></u>	<u>Schizopathidae</u>	
	<u><i>Parantipathes</i> sp.</u>	<u>Schizopathidae</u>	
	<u><i>Stauropathes</i> <i>arctica</i></u>	<u>Schizopathidae</u>	<u>SOW</u>
	<u><i>Stauropathes</i> cf. <i>punctata</i></u>	<u>Schizopathidae</u>	
	<u><i>Telopathes</i> <i>magnus</i></u>	<u>Schizopathidae</u>	
Small Gorgonians (GGW)	<i>Acanella arbuscula</i>	Isididae	KQL (Acanella)
	<i>Anthothela grandiflora</i>	Anthothelidae	WAG
	<i>Chrysogorgia</i> sp.	Chrysogorgiidae	FHX
	<i>Metallogorgia melanotrichos*</i>	Chrysogorgiidae	
	<i>Narella laxa</i>	Primnoidae	
	<i>Radicipes gracilis</i>	Chrysogorgiidae	CZN
	<i>Swiftia</i> sp.	Plexauridae	
Large Gorgonians (GGW)	<i>Acanthogorgia armata</i>	Acanthogorgiidae	AZC
	<i>Calyptrophora</i> sp.*	Primnoidae	
	<i>Corallium bathyrubrum</i>	Coralliidae	COR (Corallium)
	<i>Corallium bayeri</i>	Coralliidae	COR (Corallium)
	<i>Iridogorgia</i> sp.*	Chrysogorgiidae	
	<i>Keratoisis</i> cf. <i>siemensii</i>	Isididae	
	<i>Keratoisis grayi</i>	Isididae	
	<i>Lepidisis</i> sp.*	Isididae	QFX (Lepidisis)
	<i>Paragorgia arborea</i>	Paragorgiidae	BFU
	<i>Paragorgia johnsoni</i>	Paragorgiidae	BFV

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3- ALPHA CODE
	<i>Paramuricea grandis</i>	Plexauridae	PZL (Paramuricea)
	<i>Paramuricea placomus</i>	Plexauridae	PZL (Paramuricea)
	<i>Paramuricea</i> spp.	Plexauridae	PZL (Paramuricea)
	<i>Parastenella atlantica</i>	Primnoidae	
	<i>Placogorgia</i> sp.	Plexauridae	
	<i>Placogorgia terceira</i>	Plexauridae	
	<i>Primnoa resedaeformis</i>	Primnoidae	QOE
	<i>Thouarella (Euthouarella) grasshoffi</i> *	Primnoidae	
	<i>Anthoptilum grandiflorum</i>	Anthoptilidae	AJG (Anthoptilum)
	<i>Distichoptilum gracile</i>	Protoptilidae	WDG
	<i>Funiculina quadrangularis</i>	Funiculinidae	FQJ
	<i>Halipteris</i> cf. <i>christii</i>	Halipteridae	ZHX (Halipteris)
	<i>Halipteris finmarchica</i>	Halipteridae	HFM
Sea Pens (NTW – Pennatulacea)	<i>Halipteris</i> sp.	Halipteridae	ZHX (Halipteris)
	<i>Kophobelemnion stelliferum</i>	Kophobelemnidae	KVF
	<i>Pennatula aculeata</i>	Pennatulidae	QAC
	<i>Pennatula grandis</i>	Pennatulidae	
	<i>Pennatula</i> sp.	Pennatulidae	
	<i>Protoptilum carpenteri</i>	Protoptilidae	
	<i>Umbellula lindahli</i>	Umbellulidae	
	<i>Virgularia mirabilis</i>	Virgulariidae	
Tube-Dwelling Anemones	<i>Pachycerianthus borealis</i>	Cerianthidae	WQB
Erect Bryozoans (BZN – Bryozoa)	<i>Eucratea loricata</i>	Eucrateidae	WEL
Sea Lilies (CWD – Crinoidea)	<i>Conocrinus lofotensis</i>	Bourgueticrinidae	WCF
	<i>Gephyrocrinus grimaldii</i>	Hyocrinidae	

Common Name and FAO ASFIS 3- ALPHA CODE	Taxon	Family	FAO ASFIS 3- ALPHA CODE
	<i>Trichometra cubensis</i>	Antedonidae	
Sea Squirts (SSX – Ascidiacea)	<i>Boltenia ovifera</i> <i>Halocynthia aurantium</i>	Pyuridae Pyuridae	WBO

Unlikely to be observed in trawls; *in situ* observations only:

Large *Syringammina* sp. Syringamminidae
xenophyophores

[illegible]

Northwest Atlantic Fisheries Organization

